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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/077,749	02/20/2002	Kiyoshi Minoura	4034-7	3442

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EXAMINER

PRITCHETT, JOSHUA L

ART UNIT PAPER NUMBER

2872

DATE MAILED: 01/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/077,749	MINOURA ET AL.	
	Examiner	Art Unit	
	Joshua L Pritchett	2872	<i>NW</i>

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-13, 17-20 and 28-36 is/are pending in the application.
- 4a) Of the above claim(s) 7, 8, 13 and 20 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17 and 28 is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6, 9-12, 18, 19, 30-32 and 34-36 is/are rejected.
- 7) ☒ Claim(s) 29, 33 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All   b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)          | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

This action is in response to Amendment filed November 7, 2003. Claims 1 and 17 have been amended, claims 4, 14-16 and 21-27 have been cancelled and claims 28-36 have been added as requested by the applicant.

### ***Election/Restrictions***

This application contains claims 7, 8, 13 and 20 drawn to an invention nonelected with traverse in Paper dated June 5, 2003. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 5, 6, 18, 19 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones in view of Okoshi (US 4,526,439).

Regarding claim 1, Jones discloses an optical element comprising a first member (30d), which has a first surface including a first concave portion (Fig. 3d); a second member (30d'), which has a second surface including a second concave portion (Fig. 3d) and which transmits incoming light therethrough (Fig. 3d), the first and second members being disposed so that the first and second surfaces are opposed to each other (Fig. 3d), wherein first and second reflective regions have been formed on the first and second concave portions respectively (Fig. 3d). Fig. 3d shows that incoming light A is reflected by the first concave portion and incoming light B is reflected by the second concave portion thus both the first and second concave portions inherently have reflective regions. Jones further discloses at least part of the incoming light that has been transmitted through the second member is reflected from at least one of the first and second reflective regions (Fig. 3d). Jones lacks reference to the use of cubic corner cubes as the reflective element. Okoshi teaches the use of cubic corner cubes as the reflective optical element (col. 3 lines 28-32). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the Jones triangular pyramidal elements changed to be the cubic corner cubes as taught by Okoshi for the purpose of greater efficiency in reflecting the incident light.

Regarding claim 3, Jones discloses wherein the first and second concave portions have substantially the same shape (Fig. 3d).

Regarding claim 5, Jones discloses wherein at least part of the incoming light that has been transmitted through the second member is reflected from both the first and second reflective regions so that the incoming light is retro-reflected (Fig. 3d). Fig. 3d shows incoming light A is

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reflected by both the first member (30d) and the second member (30d') and returns in the direction of the incoming light.

Regarding claim 6, Jones discloses wherein at least one of the first and second reflective regions is made of a metal film (col. 4 lines 4-5).

Regarding claim 18, claim 18 is a method claim that merely involves providing the structure of claim 1; therefore the claim is rejected using the same elements as claim 1.

Regarding claim 19, claim 19 is a method claim that merely involves providing the structure of claim 1; therefore the claim is rejected using the same elements as claim 1.

Regarding claims 30 and 34, Jones teaches the invention as claimed but lacks reference to the cubic corner cubes. Okoshi teaches the use of cubic corner cubes that have three substantially square planes that are opposed perpendicularly to each other and each of the square planes has triangular facets (col. 3 lines 28-32). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the Jones triangular pyramidal elements changed to be the cubic corner cubes as taught by Okoshi for the purpose of greater efficiency in reflecting the incident light.

Claims 2 and 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones in view of Okoshi as applied to claim 1 above, and further in view of Qin.

Jones teaches the invention as claimed including the first and second concave portions are disposed so that they do not face each other (Fig. 3d). Jones lacks reference to a flat portion in the first or second member. Qin teaches the use of a flat portion (24) in a light controlling optical element. It would have been obvious to a person of ordinary skill in the art at the time

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the invention was made to include the flat portions of Qin in the Jones members for the purpose of offsetting the different pixels from one another.

Claims 9, 10, 31, 32 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones in view of Okoshi as applied to claim 1 above, and further in view of Whitehead.

Regarding claims 9, 31 and 35, Jones teaches the invention as claimed including the use of a light modulating layer (col. 2 lines 32-47), but lacks reference to the light-modulating layer between the two elements. Whitehead teaches the location of the light-modulating layer (32) between two reflective elements (24 and 28; Fig. 3B). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the light modulating layer taught by Jones between the reflective elements as taught by Whitehead for the purpose of creating a color display panel (Whitehead page 9 lines 25-35).

Regarding claims 10 and 32, Jones teaches the use of a light scattering light modulating layer (col. 2 lines 37-38).

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones in view of Okoshi and Whitehead as applied to claim 10 above, and further in view of Sakata (JP 11-007008).

Jones in combination with Okoshi and Whitehead teaches the invention as claimed but lacks reference to the use of a flattening member to fill the concave portions. Sakata teaches the use of a flattening member (23) to fill the concave portions of a liquid crystal display device (abstract lines 11-12). It would have been obvious to a person of ordinary skill in the art at the

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time the invention was made to have the flattening member as taught by Sakata to fill the first and second concave portions of Jones for the purpose of obtaining high visibility without lowering the reflection factor of the reflecting surface and the transmission of the liquid crystal layer.

*Allowable Subject Matter*

Claims 17 and 28 are allowed.

The following is an examiner's statement of reasons for allowance: The prior art of record fails to teach or suggest the use of first and second reflective members extended along a common plane disposed to that the reflective surfaces of the first and second member do not overlap when viewed in a normal direction to the common plane.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Claims 29 and 33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to teach or suggest the use of first and second reflective members

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extended along a common plane disposed to that the reflective surfaces of the first and second member do not overlap when viewed in a normal direction to the common plane.

### ***Response to Arguments***

Applicant's arguments, see Amendment, filed November 7, 2003, with respect to the rejection(s) of claim(s) 1, 18 and 19 under Jones have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Jones in view of Okoshi.

Applicant's arguments, see Amendment, filed November 7, 2003, with respect to claim 17 have been fully considered and are persuasive. The rejection of claim 17 has been withdrawn.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua L Pritchett whose telephone number is 703-305-7917. The examiner can normally be reached on Monday - Friday 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew A Dunn can be reached on 703-305-0024. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9318.



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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JLP

*JLP*

  
DREW DUNN  
SUPERVISORY PATENT EXAMINER